

CLAIMS

What is claimed is:

- 5 1. A radiation device with a L-shaped ground plane comprising:
 - a radiation patch;
 - a feeding-in device for exciting the radiation metal piece; and
- 10 a ground plane element having a first ground plane and a second ground plane, the first ground plane being parallel to the radiation patch, and the second ground plane being installed on the first ground plane so as to form an included angle between the first and second ground planes;
 - wherein the feeding-in device will connect the radiation patch to the first ground plane of the ground plane element.
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- 20 2. The radiation device of claim 1, wherein the included angle between the first ground plane and the second ground plane is less than or equal to 90 degrees.
- 25 3. The radiation device of claim 1, wherein the

included angle between the first ground plane and the second ground plane is greater than or equal to 90 degrees.

5 4. The radiation device of claim 2, wherein the ground plane element is a L-shaped ground plane.

10 5. The radiation device of claim 1, wherein on the left side of the first ground plane, the second ground plane is extended upward from the surface of the first ground plane where the radiation patch is installed so as to form the ground plane element.

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20 6. The radiation device of claim 1, wherein on the right side of the first ground plane, the second ground plane is extended upward from the surface of the first ground plane where the radiation metal piece is installed so as to form the ground plane element.

7. The radiation device of claim 1, wherein the L-shaped ground plane further comprises

another second ground plane, and the two second planes are extended upward from the surface of the first ground plane where the radiation patch is installed, respectively on the 5 left and right sides of the first ground plane, so as to form the ground plane element.

8. The radiation device of claim 1, wherein the height of the second ground plane is not greater 10 than twice distance between the radiation patch and the first ground plane.

9. The radiation device of claim 1, wherein the radiation patch is rectangular.

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10. The radiation device of claim 1, wherein the radiation patch is circular.

11. The radiation device of claim 1 further 20 comprising a shorted structure installed between the radiation patch and the first ground plane.